

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 30A-93 407	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2004/006322	International filing date (day/month/year) 11.06.2004	Priority date (day/month/year) 11.06.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant COMPACT DYNAMICS GMBH		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

- a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:
- ☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s))

_____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- ☒ Box No. I Basis of the report
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/006322

Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (Rule 12.3 and 23.1(b))
☐ publication of the international application (Rule 12.4)
☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1-10 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

nos. _____ as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* 1-12 received by this Authority on 14.12.2004 with letter of 14.12.2004

nos.* _____ received by this Authority on _____

☒ the drawings:

sheets 1/4-4/4 as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/006322

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-12	YES
	Claims		NO
Inventive step (IS)	Claims	1-12	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
Reference is made to the following documents:			
D1: US-A-5 493 472 (LAVENE BERNARD)			
D2: US-B1-6 249 448 (FELLMANN DANIEL ET AL)			
D3: US-A-5 142 439 (HUGGETT COLIN E ET AL)			
D4: US-A-6 160 696 (BAILEY RONALD BARRY ET AL)			
D5: EP-A-0 987 761 (TOYODA AUTOMATIC LOOM WORKS)			
1. Document D1 (US-A-5 493 472), which is considered to be the prior art closest to the subject matter of claim 1, discloses the following (see column 2, lines 8 to 35, and figure 1; the references in parentheses are to D1):			
[Claim 1]			
An electronic subassembly for switching electrical power, with			
- two mutually spaced power supply rails (6D, 10D), between which are fitted semiconductor switches actuated via a control input for providing electrical power to a power output;			
- and a capacitor arrangement (110) bridging the two power supply rails (6D, 10D) and extending			

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

over at least part of the length of the power supply rails;

- wherein the two contact layers each have a freely accessible contact surface (312) set up to contact correspondingly designed power terminals.

The subject matter of claim 1 differs from the known subassembly by virtue of the following features:

- two contact layers, each starting from one of the power supply rails and at least partially overlapping the capacitor arrangement, each contact layer having a free end portion which protrudes towards the other power supply rail;
- the power output has a bus bar positioned between the two power supply rails.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

2. The solution proposed in claim 1 of the application involves an inventive step (PCT Article 33(3)) for the following reasons:

The problem addressed by the invention can be seen as that of providing a compact electronic subassembly for switching electrical power, significantly minimising voltage pulse peaks even when switching with pulse times in the range up to between 10 and 1000 nsec and high switching capacities in the range of several tens of watts to several kilowatts.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/006322

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
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The other documents cited in the search report (D2, D3, D4 and D5) disclose embodiments of an electronic subassembly for switching electrical power. However, they do not provide the skilled person with any technical teaching or information that might lead to the solution proposed in claim 1. The subject matter of claim 1 therefore involves an inventive step.

3. Claims 2 to 12 are dependent on claim 1 and therefore also meet the PCT requirements in respect of novelty and inventive step.

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Clarity of the subject matter of claim 1

4. The application fails to meet the requirements of PCT Article 6 and PCT Rule 6.3(b)(i) because claim 1 is not clear.

The invention addresses the problem of providing a compact electronic subassembly for switching electrical power with low line inductances, significantly minimising voltage pulse peaks even when switching with pulse times in the range up to between 10 and 1000 nsec and high switching capacities in the range of several tens of watts to several kilowatts. Independent claim 1 must therefore include the features that contribute to the solution, namely:

- at least two semiconductor switches (14, 22; 16, 24; 18, 26),
- three conductor rails,
- a capacitor arrangement (52), and
- the electrical and mechanical connections between these components.

The features specified in dependent claim 9 (the electrical connections between the components) are essential to the definition of the invention.